Supporting Information (SI)

Development of a solvometallurgical process for the separation of yttrium and europium by Cyanex 923 from ethylene glycol solutions

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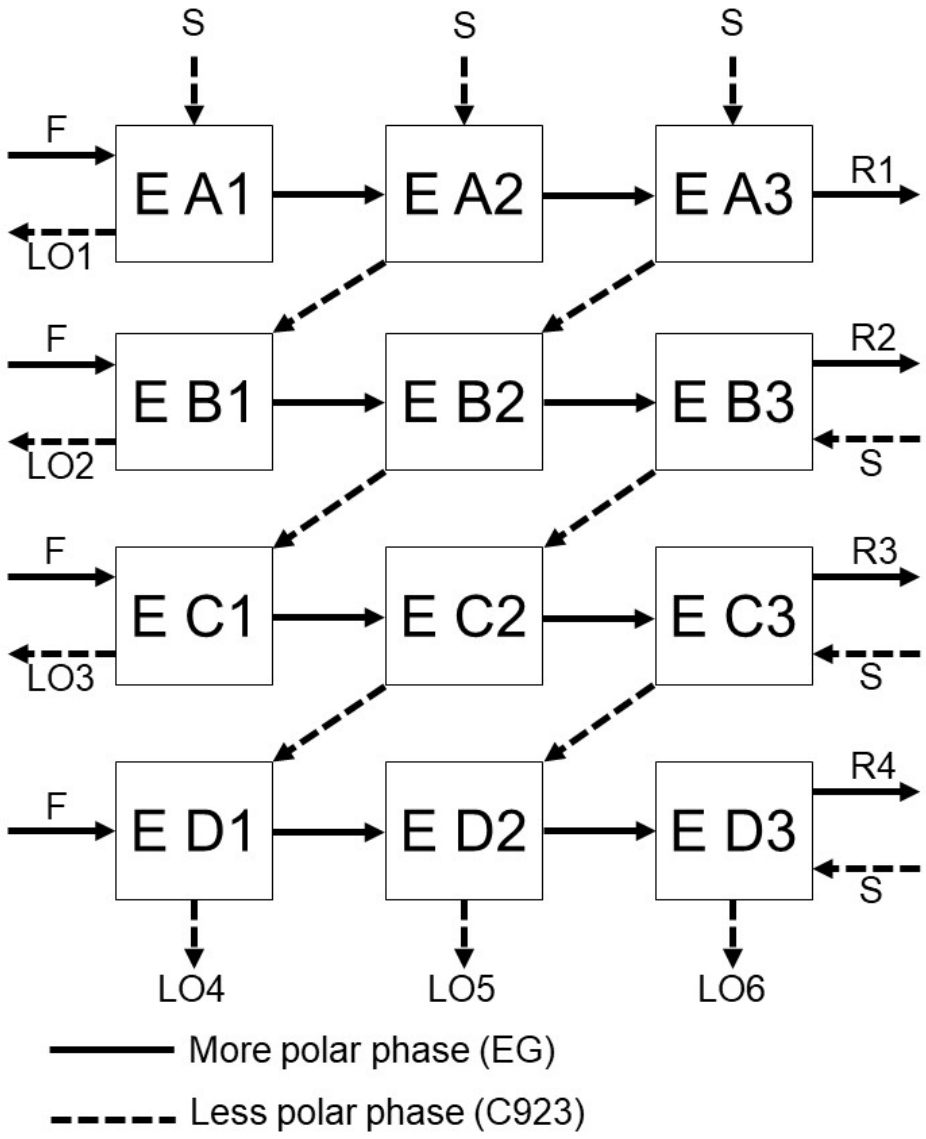

Figure S1. Counter-current extraction simulation procedure, F = EG feed, S = Fresh Cyanex 923 solvent, LO3 = loaded solvent after 3-stage counter-current extractions, R3 = Raffinate obtained after 3-stage counter-current extractions

Table S1: Y(III)/Eu(III) separation factors for different more polar solvents.

[Cyanex 923], mol L^{-1}	**H_2O**	**EG**	**PG**	**PEG200**
0.1	1	*	1	12
0.2	1	*	2	**
0.3	1	22	3	10
0.5	1	27	3	2.6
0.7	1	27	4	**
0.8	1	46	4	1.4
1	1	39	4	1.2

** No calculation of separation factor possible since $D_{Eu} = 0$*

*** No measured data available*

Table S2: Y(III)/Eu(III) separation factors for EG:cosolvent experiments.

Feed system	**%*E*, Y**	**%*E*, Eu**	**$\alpha_{Y,Eu}$**
EG / H2O	30.9	7.7	6
EG / DMSO	44.2	4.1	20
EG / PG	90.2	47.2	10
EG / MeOH	94.5	54.2	15
EG / PEG-200	99.0	92.6	8
EG pure	83.9	12.4	39

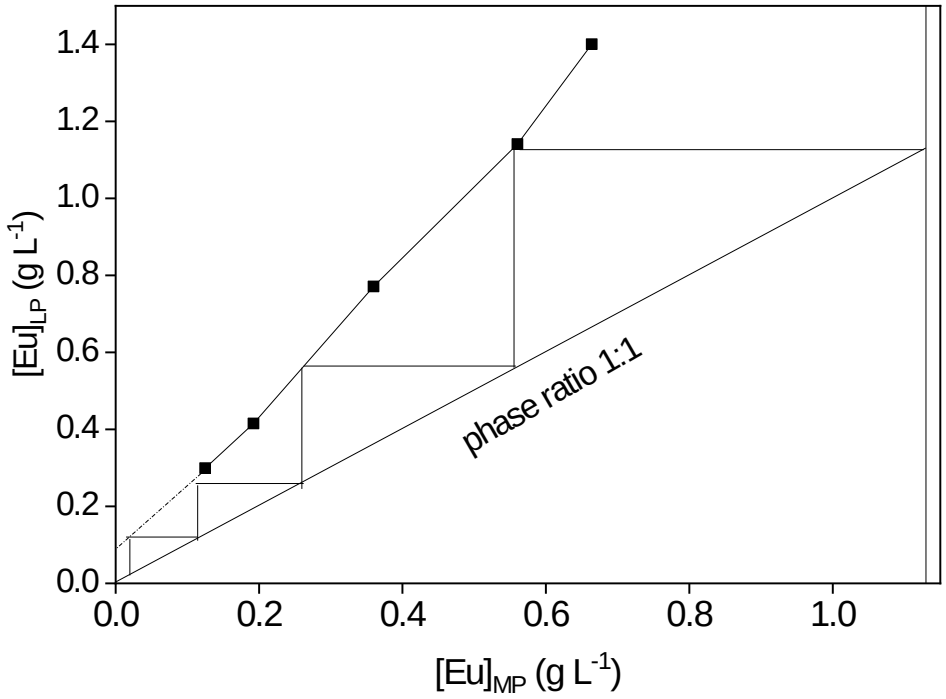

Figure S2: McCabe-Thiele diagram of europium extraction. Conditions: room temperature, 600 rpm, 1 h, [Cyanex 923] = 1 mol L^{-1}, [LiCl] = 2 mol L^{-1}. Initial metal concentrations: $[Eu(III)]_{MP}$ = 1.1 g L^{-1}.